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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/665,588	09/19/2000	Tsuyoshi Yamashita	197264US2	5792

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EXAMINER	
MASKULINSKI, MICHAEL C	
ART UNIT	**PAPER NUMBER**
2113	

DATE MAILED: 03/31/2004

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/665,588	YAMASHITA ET AL.	
	Examiner	Art Unit	
	Michael C Maskulinski	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) *1,2,5 and 6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,4,7 and 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *14/ 11 February 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Non-Final Rejection

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 3, 4, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al., U.S. Patent 4,535,456, and further in view of Sadre et al., U.S. Patent 5,485,620.

Referring to claim 3:

a. In the Abstract, Bauer et al. disclose a programmable controller, which controls, for example, operation of a machine tool, or other device in which sequential events occur. However, Bauer et al. don't explicitly disclose a sequential-function-chart-type programmable controller. In column 13, lines 36-65, Sadre et al. disclose a sequential-function-chart-type programmable controller. It would have been obvious to one of ordinary skill at the time of the invention to include the sequential-function-chart-type programmable controller of Sadre et al. into the system of Bauer et al. A person of ordinary skill in the art would have been motivated to make the modification because the standard Sequential Function Chart (SFC) is intended to provide a graphical means for presentation of an application program for controlling both sequential and continuous functions (see Sadre et al.: column 4, lines 25-28). Further, in column 3, lines 46-51, Sadre et al. disclose that an example of a sequential function is machine operation or sequencing. As stated earlier the

programmable controller of Bauer et al. controls operation of a machine tool. Therefore the SFC of Sadre et al. would be used to control the machine tool of Bauer et al.

b. In column 2, lines 15-23, Bauer et al. disclose a predetermined execution time of a step (standard value of an active time of an arbitrary step in a sequential-function-chart program). Having a reference-active-time memory unit for storing the predetermined execution time is inherent to the system of Bauer et al.

c. In column 8, lines 23-36, Bauer et al. teach a timing means for timing the run-through of a program run, or cycle (a timer for measuring the active time of the arbitrary step).

d. In column 2, lines 46-52, Bauer et al. disclose that in accordance with a preferred feature of the invention, error checking is carried out only if the time for the entire sequencing of control steps of the controlled machine or engine or similar device exceeds a certain value (an anomalous-state monitoring unit which detects an anomalous state of the arbitrary step through comparison between the active time measured by the timer and the standard value stored in the reference-active-time memory unit).

e. In column 26, lines 7-20, Sadre et al. disclose that each button of the manual application sequencer display is displayed with an inactive color (e.g., gray) to indicate that the associated step is not active. When an application program step is ready to be activated, the associated button is displayed with a

ready color (e.g., yellow). When the operator pushes the ready button, the associated step is executed, and the button is displayed with an active color (e.g., green). The button is displayed with the active color until the associated application program step is completed. When the application program step is completed, the button is displayed with an inactive color, and the next button in sequence is displayed with a ready color. If an error occurs, the active button is displayed with an error color (e.g., red) (a display unit for displaying the program in such a manner that a step which has been detected by the anomalous-state monitoring unit to be in an anomalous state is distinguished from other steps).

f. In column 10, lines 30-53, Bauer et al. disclose that if the runs of program use sequential steps, which are sequentially programmed, then the outputs or results will be SET. Since only one output at a time may be SET, and this output is cancelled only when the continued sequencing conditions for the next output have been fulfilled, the test program must only determine in which address stored in the RAM the status ONE is entered (an execution monitor unit for storing data indicating whether each step in the sequential-function-chart program has been executed). Further, in column 26, lines 7-20, Sadre et al. disclose that each button of the manual application sequencer display is displayed with an inactive color (e.g., gray) to indicate that the associated step is not active. When an application program step is ready to be activated, the associated button is displayed with a ready color (e.g., yellow). When the operator pushes the ready button, the associated step is executed, and the button is displayed with an

active color (e.g., green). The button is displayed with the active color until the associated application program step is completed. When the application program step is completed, the button is displayed with an inactive color, and the next button in sequence is displayed with a ready color. If an error occurs, the active button is displayed with an error color (e.g., red) (the display unit displays the program in such a manner that a step or steps which have been executed are distinguished from a step or steps which have not yet been executed, on the basis of the data stored in the execution monitor unit).

g. In column 25, lines 30-40, Sadre et al. disclose that the event handler logs a series of I/O status and program status information representing a snapshot of the state of the controller at a particular instance in time. Each snapshot will be referred to as a "frame." Once the frames are captured and the fault condition has been detected, the log of the frames may be replayed to the user to observe the conditions that existed prior to the detection of the fault (indicate a history or path up to the step detected to be in an anomalous state, wherein the history or path up to the step detected to be in an anomalous state is reset only during an initial step of the sequential-function-chart-program).

Referring to claim 4, in column 10, lines 30-53, Bauer et al. disclose that if the runs of program use sequential steps, which are sequentially programmed, then the outputs or results will be SET. Since only one output at a time may be SET, and this output is cancelled only when the continued sequencing conditions for the next output have been fulfilled, the test program must only determine in which address stored in the

RAM the status ONE is entered (when conditions for transition from a certain step to the next step are satisfied, the execution monitor unit brings a corresponding execution-completion flag into a predetermined state to thereby memorize whether the step has been executed).

Referring to claim 7:

a. In the Abstract, Bauer et al. disclose a programmable controller, which controls, for example, operation of a machine tool, or other device in which sequential events occur. However, Bauer et al. don't explicitly disclose a sequential-function-chart-type programmable controller. In column 13, lines 36-65, Sadre et al. disclose a sequential-function-chart-type programmable controller. It would have been obvious to one of ordinary skill at the time of the invention to include the sequential-function-chart-type programmable controller of Sadre et al. into the system of Bauer et al. A person of ordinary skill in the art would have been motivated to make the modification because the standard Sequential Function Chart (SFC) is intended to provide a graphical means for presentation of an application program for controlling both sequential and continuous functions (see Sadre et al.: column 4, lines 25-28). Further, in column 3, lines 46-51, Sadre et al. disclose that an example of a sequential function is machine operation or sequencing. As stated earlier the programmable controller of Bauer et al. controls operation of a machine tool. Therefore the SFC of Sadre et al. would be used to control the machine tool of Bauer et al.

b. In column 2, lines 15-23, Bauer et al. disclose a predetermined execution time of a step (standard value of an active time of an arbitrary step in a sequential-function-chart program). Having a reference-active-time memory unit for storing the predetermined execution time is inherent to the system of Bauer et al.

c. In column 8, lines 23-36, Bauer et al. teach a timing means for timing the run-through of a program run, or cycle (a timer for measuring the active time of the arbitrary step).

d. In column 2, lines 46-52, Bauer et al. disclose that in accordance with a preferred feature of the invention, error checking is carried out only if the time for the entire sequencing of control steps of the controlled machine or engine or similar device exceeds a certain value (an anomalous-state monitoring unit which detects an anomalous state of the arbitrary step through comparison between the active time measured by the timer and the standard value stored in the reference-active-time memory unit).

e. In column 10, lines 30-53, Bauer et al. disclose that if the runs of program use sequential steps, which are sequentially programmed, then the outputs or results will be SET. Since only one output at a time may be SET, and this output is cancelled only when the continued sequencing conditions for the next output have been fulfilled, the test program must only determine in which address stored in the RAM the status ONE is entered (an execution monitor unit for storing data

indicating whether each step in the sequential-function-chart program has been executed).

f. In column 26, lines 7-20, Sadre et al. disclose that each button of the manual application sequencer display is displayed with an inactive color (e.g., gray) to indicate that the associated step is not active. When an application program step is ready to be activated, the associated button is displayed with a ready color (e.g., yellow). When the operator pushes the ready button, the associated step is executed, and the button is displayed with an active color (e.g., green). The button is displayed with the active color until the associated application program step is completed. When the application program step is completed, the button is displayed with an inactive color, and the next button in sequence is displayed with a ready color. If an error occurs, the active button is displayed with an error color (e.g., red) (a display unit for displaying the program in such a manner that a step detected by the anomalous-state monitoring unit to be in an anomalous state, a step or steps which have been executed, and a step or steps which have not yet been executed are is distinguished from one another).

g. In column 25, lines 30-40, Sadre et al. disclose that the event handler logs a series of I/O status and program status information representing a snapshot of the state of the controller at a particular instance in time. Each snapshot will be referred to as a "frame." Once the frames are captured and the fault condition has been detected, the log of the frames may be replayed to the user to observe

the conditions that existed prior to the detection of the fault (indicate a history or path up to the step detected to be in an anomalous state, wherein the history or path up to the step detected to be in an anomalous state is reset only during an initial step of the sequential-function-chart-program).

Referring to claim 8, in column 10, lines 30-53, Bauer et al. disclose that if the runs of program use sequential steps, which are sequentially programmed, then the outputs or results will be SET. Since only one output at a time may be SET, and this output is cancelled only when the continued sequencing conditions for the next output have been fulfilled, the test program must only determine in which address stored in the RAM the status ONE is entered (when conditions for transition from a certain step to the next step are satisfied, the execution monitor unit brings a corresponding execution-completion flag into a predetermined state to thereby memorize whether the step has been executed).

Response to Arguments

3. Applicant's arguments filed January 16, 2004 have been fully considered but they are not persuasive.

4. On page 7, under the section REJECTION ARGUMENTS, the Applicant argues, "Sadre is not concerned with a history or path indication. Thus, while Sadre discloses that each button for manual manipulation by the user is displayed with an active, inactive, ready, or error color, and that a time tag is recorded with each frame for playback to see what I/O conditions or program conditions may have caused the programming problem or fault, Sadre also teaches that the event handler only keeps the

newest events while discarding older ones. See col. 24, lines 49-53 of Sadre." The Examiner respectfully disagrees. In column 25, lines 30-40, Sadre et al. disclose that the event handler logs a series of I/O status and program status information representing a snapshot of the state of the controller at a particular instance in time. Each snapshot will be referred to as a "frame." Once the frames are captured and the fault condition has been detected, the log of the frames may be replayed to the user to observe the conditions that existed prior to the detection of the fault (indicate a history or path up to the step detected to be in an anomalous state, wherein the history or path up to the step detected to be in an anomalous state is reset only during an initial step of the sequential-function-chart-program). Further, the section referred to by the Applicant does not specify the size of the FIFO used as an event log; therefore, the data may not be discarded as indicated by the Applicant. Nor does the Applicant claim that the data stored for the history or path includes data for the entire history or path. The Examiner would like to note that one event being recorded before the anomalous state indicates a history or path leading up to the anomalous state.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C Maskulinski whose telephone number is (703) 308-6674. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MM

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